Remarks

The above Amendments and these Remarks are in reply to the Office Action mailed June 30, 2008. Claims 1-12, 14-20, 22 and 23 were pending in the Application prior to the outstanding Office Action. In the Office Action, the Examiner rejected claims 1-12, 14-20, 22 and 23. The present Response cancels claims 1-12, 14-16, and 23, amends claims 18, 19 and 22, and adds new claims 24-30. Reconsideration of the rejections is requested.

Claim Rejections – Rejection under 35 USC §102

Claims 1-12, 14-20, 22 and 23 stand rejected under 35 USC 102 as being anticipated by *Riley* (U.S. Pat. 4,231,568). Applicant requests cancellation of claims 1-12, 14-16 and 23. Applicant respectfully traverses the rejection of claim 17-20 and 22.

1. *Riley* fails to anticipate claim 22 because *Riley* fails to teach all of the elements of claim 22. *Riley* is cited as teaching a double pulley that has "a first groove into which cable (46) and a second variable groove (41) where a cable is engaged in the spiral groove and has a spring (44)." However, *Riley* does not teach "an adjustable end plug connected between the input cable and the spring; wherein the adjustable end plug includes a helical groove within which a coil of the spring is receivable; and wherein the adjustable end plug can be threaded along the coil of the spring to adjust the characteristic of the spring" as recited in claim 22.

Figure 4 is shown below and illustrates an embodiment on which claim 22 reads.

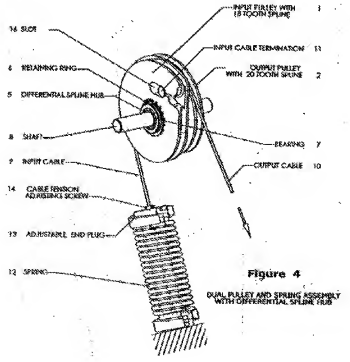

Figure 4

DUAL PULLEY AND SPRING ASSEMBLY WITH DIFFERENTIAL SPLINE HUB

As can be seen, an end plug (13) such as shown in Figure 6 is threaded onto the spring (12) and connected to a dual pulley (1) by a cable (9). The dual pulley (1) can be shaped to have a varying radius so that the dual pulley converts a non-linear spring force to an approximately linear counter-force applied to an output cable (10). The end plug (13) can be advanced along the coils to effectively shorten the spring, shifting a force response curve of the spring higher or retreated along the coils to effectively lengthen the spring, shifting a force response curve of the spring lower (See Response Fig. A below, which reflects ideal performance, i.e., neglecting non-linear response which is believed to be significantly reduced by the dual-pulley).

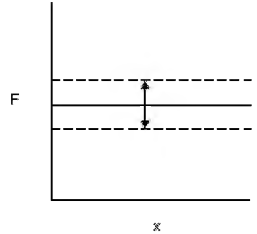

Fig. A

Such a mechanism can be useful in many practical applications. For example, in a medical environment where heavy medical equipment need be movably positioned around a patient, the base weight of the equipment can be counter-balanced by the spring-dual pulley system of Figure 4. Should the addition of accessories to the equipment add significant weight to the equipment, the additional weight can be compensated for in the counter-force by adjusting the position of the end plug along the spring.

In another example, a spring-dual pulley system as shown in Figure 4 can be made to support the weight of an automobile in a garage. If a 3,000 lb. counter-force target is achieved with the end plug in a nominal position along the coils of the spring, the actual supportable weight may be adjustable by some percentage of the counter-force. For the sake of illustration, if the end plug enables 20% movement in the counter-force target, the spring-dual pulley system can adjustably support automobiles weighing between 2,700 lb and 3,300 lb.

Applicant submits that because *Riley* fails to disclose all of the features of claim 22, *Riley* cannot anticipate claim 22 under 35 U.S.C. 102(b).

2. *Riley* fails to anticipate claim 17 because *Riley* fails to teach all of the elements of claim 17. *Riley* is cited as teaching a double pulley that has "a first groove into which cable (46) and a second variable groove

(41) where a cable is engaged in the spiral groove and has a spring (44)." However, *Riley* does not teach "a plug; a thread described on said plug…said thread adapted to be screwed onto the spring…wherein a counter force applied by the spring…is adjustable by repositioning the plug along the spring" as recited in claim 17.

Figure 6 is shown below and illustrates an embodiment on which claim 17 reads.

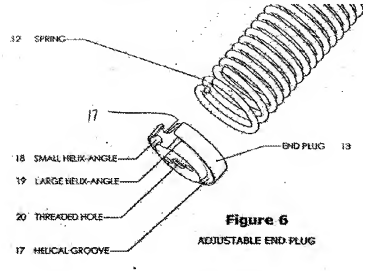

Figure 6
ADJUSTABLE END PLUG

As can be seen, the plug (13) includes a thread (between the helical grooves (17)). As the plug (13) is screwed along the spring (12), coils of the spring are held within the helical grooves (17) so that the number of ***active*** coils (the coils that determine the spring response) is increased or decreased depending on where the plug (13) is advanced along the spring (12). The plug may be adjusted so that the spring includes only a few active coils, or nearly all of the coils, enabling variation in spring response. When a force is applied to the plug, the plug grabs the coils within the grooves and applies a force to the active coils. *Riley* does not include such a feature. *Riley* describes a simple spring (44) that is not adjustable.

Applicant submits that because *Riley* fails to disclose all of the features of claim 17, *Riley* cannot anticipate claim 17 under 35 U.S.C. 102(b). Dependent claims have at least the features of the independent claims from which they ultimately depend; therefore, *Riley* cannot anticipate claims 18-20 (which depend form claim 17) under 35 USC 102(b).

Applicant further submits an information disclosure statement (IDS) listing three references for adjustable springs found in a cursory prior art search. Applicant notes that the adjustable spring art cited is directed to spring scales and enable minimal adjustment to compensate for variations in spring response resulting, for example, from manufacturing variations. U.S. Pat. 1,063,242 discloses that "the body portion of each [connecting] piece [7,8] has a width equal to the inside diameter of the spring 4, so that said spring may be twisted or screwed up on the body of the connecting piece with several of the convolutions of the

spring…this method of connection affords a quick and easy method for adjusting the spring for accuracy." See lines 64-72. The connecting piece of '242 enables only slight movement for calibration purposes. As can be seen, movement along the coils is limited by the upper projections (15). Similarly, U.S. Pat. 273,720 discloses a screw C "to compensate for the stretch of the spring which will occur from long use." See lines 66-68. Again, the screw distorts the spring to calibrate the spring-scale as the spring-scale drifts in accuracy. The screw C is limited in length and cannot be adjusted past the nut D which grips the screw C to connect the spring to a thumb ring F.

Additional Claims

Applicants submit that newly added claims 24-30 are allowable over the cited prior art.

Conclusion

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and a Notice of Allowance is requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

Enclosed is a Petition for Extension of Time under 37 C.F.R. § 1.136 for extending the time to respond up to and including November 24, 2008.

If fees other than those submitted herewith are found to be due, the Commissioner is authorized to charge any underpayment or to credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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